

CALIFORNIA STATE DEPARTMENT OF PUBLIC HEALTH

GILES S. PORTER, M.D., Director

Weekly Bulletin



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EDITOR

Insects That May Transmit Disease

There are many insects which may transmit a wide variety of communicable diseases. The role of the house fly in the transmission of intestinal and other diseases has become a matter of common knowledge and the role of the anopheles mosquito in the transmission of malaria is almost as well known. The role of the rat flea in the transmission of plague is well known to public health workers and recent investigations upon the part of the United States Public Health Service have determined that the rat flea may also be a factor in the spread of typhus fever. An increasing amount of information becomes available, each year, relative to the growing importance of a wide variety of insects in the transmission of serious and often fatal communicable diseases. This article has to do chiefly with three such diseases which occur in California and which are transmitted by insects whose activity becomes increased greatly during the summer months. These are Rocky Mountain spotted fever, transmitted by the woodtick; relapsing fever, transmitted by ticks; and poisoning through the bite of the black widow spider. All three of these occur in California each year and four cases of Rocky Mountain spotted fever, two of which have proven fatal, have occurred already during the 1932 season.

ROCKY MOUNTAIN SPOTTED FEVER

While this disease is more prevalent in Montana and Idaho than in California, a considerable number of cases occur each year in the northeastern part of

this State. The disease is transmitted through the bite of the wood tick, *Dermacentor andersoni*. Experimentally, the disease may be transmitted also by the eastern dog tick and by the *Dermacentor occidentalis*, which is found in California. Rocky Mountain spotted fever has been found in almost every State of the Union, but it is more prevalent and exists in a more severe form in the territory which centers about the Bitter Root Valley of Montana than in any other section of the country. The United States Public Health Service has established a laboratory at Hamilton, Montana, where this disease is studied intensively and where a vaccine which is used in the prevention of the disease has been developed. Experimental work is also undertaken in this laboratory for the purpose of developing methods of controlling the ticks which spread the disease. A parasite which is destructive to wood ticks was imported from France a few years ago and it is possible that this parasite will become a common factor in the destruction of the causative insects.

Four cases of Rocky Mountain spotted fever that have occurred in California this year were reported from Modoc and Lassen Counties. Two of these cases were in boys who went on a fishing trip and were, presumably, bitten by infected ticks. The other two cases were in sheep men whose occupation exposes them to ticks. One of these sheep men resided in Modoc County and the other in Lassen County. Nearly 300 residents in this part of the State have

been vaccinated against the disease, this year, with material obtained from the United States Public Health Service Laboratory at Hamilton, Montana. Rocky Mountain spotted fever has existed in some portions of the northwestern United States ever since that part of the country was first settled. There is evidence, however, that the Indians knew this disease before the country was settled by white men. The disease is more virulent in some localities than in others and in one valley of Montana the mortality rate is 80 to 90 per cent, while in communities of adjacent states the mortality is as low as 3 to 4 per cent. As nearly as can be determined, the mortality rate for all the states, other than Montana and Idaho, varies from 7 to 12 per cent. The fatality rate in California is fairly high and every precaution should be taken against contact with wood ticks. Campers, fishermen, hunters, sheepmen, and cattlemen, are warned to take proper precautions against contacts with these insects. Individuals whose occupations bring them into contact with wood ticks in the northeastern part of the State should be vaccinated against the disease before exposure.

Since many cases in California are reported during the early summer, it is important that every safeguard against contracting the disease be provided during the coming weeks. While vaccination against this disease is comparatively new, it is believed that effective results may be obtained through its use. Favorable results have been reported following its administration. Physicians can obtain this vaccine without charge from the Officer-in-Charge of the United States Public Health Service Rocky Mountain Spotted Fever Laboratory at Hamilton, Montana. In making requests for the vaccine, the number of persons for whom the vaccine is required should be specified. In return for the vaccine, the United States Public Health Service requests detailed records from physicians in order that all available information relative to the prevention of the disease may be gathered.

RELAPSING FEVER

Relapsing fever is transmitted, presumably, by lice and ticks, although nothing definite is known regarding the exact mode of transmission. The early histories of cases of the disease which have been reported in California and Nevada always relate the occurrence of a bite due to an insect. Some of the patients reported a history of having been bitten by ticks and others have reported having been bitten by a small brown insect which resembles a bedbug. Observation in Texas has proven that *Ornithodoros turicata* is the transmitting host of relapsing fever spirochaete. The

California Department of Public Health is carrying on investigations in the high mountainous districts of California, in order to determine the type of insect that may be responsible for the transmission of relapsing fever in California. At all events, this disease is prevalent during the summer months, when ticks are invariably active. It is possible that work now being undertaken will lead to more definite knowledge relative to the presence of this disease in California.

In 1931, ten cases of relapsing fever were reported within the State. All of these occurred in the high mountain regions of both northern and southern California. All of them occurred during July, with the exception of one case which occurred early in August. It may be added that the investigation now being undertaken indicates that relapsing fever in California is transmitted by an insect which feeds on ground rodents, presumably. This species of tick bites man and animals, particularly at night. It seldom remains on the body of the host for more than thirty minutes, generally dropping off immediately after having bitten. Its bite is quite different from that of the wood tick in that it does not bury its head into the skin. Vacationists who journey to the high mountains this summer are advised to take precautions against insect bites. They should not sleep upon the ground and whether they sleep in tents or temporary shelters, they should make certain that such habitations are insect-proof. It would seem that the season during which the disease may be contracted is extremely short but during the months of July and August every precaution should be taken against insect bites in the high mountains.

SPIDER POISONING

During recent years in California a number of cases of spider poisoning caused by the bite of the so-called "black widow" spider have been reported during the summer months. Several of these cases have resulted fatally and the insect is a menace to such an extent that precautions should be taken against its bite. The "black widow" spider, scientifically known as *Lacrodectus mactans*, is also known as the "shoe button" spider and the "hour glass" spider. Its shiny, black, round abdomen is responsible for the "shoe button" description, and a bright red patch, shaped somewhat like an hour glass, on the under side of the abdomen, is responsible for the hour glass designation. It is probably the only poisonous spider in the United States and is found in the lower half of the country from coast to coast. The web built by the spider is coarse and irregular in shape. It is generally located in dimly lighted outdoor places where it is not likely to be disturbed. It is often located in corners, between

rafters, and under the floors of sheds, out-buildings, barns, and such buildings. Many cases have occurred among individuals in the rural districts who enter wooden privies. After the sharp, stinging bite, acute pain develops in the region of the surface that has been bitten, but it spreads rapidly to other parts of the body. In addition to the pain, there is generally muscle contraction, difficult breathing, cold perspiration, writhing, spasms, nausea, and extreme rigidity of the abdomen. Convalescence is long and there remains a general weakness, numbness and pain. In fatal cases, death generally occurs in from 14 to 32 hours. Medical treatment calls for relief from pain, the provision of stimulation, and the elimination of the poison. A convalescent blood serum taken from individuals who have recovered from bites of this spider has been used successfully in the treatment of a few cases. During summer months, upon entering old sheds and out-houses, it is advisable to make certain that this poisonous spider is not present. To take proper precaution against the bite of the "black widow" spider is advisable since the results which follow the bite of this insect are extremely unpleasant and may prove fatal.

Dr. Emil Bogen of Los Angeles has contributed most of the literature upon poisoning from the bite of this spider and he is regarded as an authority upon the subject.

MOSQUITOES

While mosquitoes have not been mentioned in this discussion, it is understood that the usual precautions should be taken against mosquito bites, particularly in those sections of the State where malaria may be endemic. While the prevalence of malaria has been reduced greatly throughout California, there are a few districts in the State where the disease may be said to exist. At all events, precaution against mosquito bites is essential for personal comfort, and in the provision of safeguards against such bites the individual may also be safeguarding his own health. The mosquito abatement districts, of which nearly twenty-five are in operation throughout California, are active in the enforcement of measures for the control of these insects. Through their activities, the prevalence of mosquitoes has been reduced greatly. In those districts of the State where no effort is made to control mosquitoes, it is particularly important that tourists protect themselves against the invasions of the insect.

They who have a good constitution of body can bear heat and cold, and so they who have a right constitution of soul can meet anger, grief, immoderate joy, and other passions.—Epictetus.

JIMSON WEED POISONING

An unusual outbreak of food poisoning occurred in San Joaquin County June 14 of this year. Fourteen out of twenty-one farm laborers employed on a ranch about three miles from Stockton were taken suddenly ill about thirty minutes after eating dinner at the ranch house. Due to weakness in the legs they collapsed immediately. There was dryness of the throat, thickness of the tongue, dizziness, blindness, dilated pupils, rapid pulse, delirium, incoherent muttering, picking at the bed clothes, and retention of urine. There was no temperature, nausea, vomiting, nor diarrhea.

At first the symptoms seemed to be those of botulism, but an intensive investigation undertaken by Dr. J. J. Sippy, Health Officer of San Joaquin County, and the State Department of Public Health, revealed the fact that Jimson weed had accidentally been cooked together with spinach, which had been served to the ranch workers. This weed was growing wild in the garden with the spinach and in gathering the vegetable both had been included in the "greens" which the laborers consumed. The pronounced symptoms which occurred were due to the powerful alkaloids that are found in Jimson weed, chiefly stramonium and atropine. It is understood that cattle will not eat Jimson weed. This outbreak was purely accidental in that the weed which contains these potent alkaloids was accidentally cooked with spinach.

Conclusion.

The whole field of food poisoning is intricate. There are so many organisms that may be involved as causative factors that it is difficult to classify all of them exactly. It may be stated, however, that if foods prepared for human consumption are sufficiently heated and produced under sanitary conditions the dangers in food poisoning are negligible. Cooked foods which are not served soon after heating should be kept under absolute refrigeration until such time as they may be served. Failure to place such foods under low temperatures may provide exactly the temperature at which the infecting bacilli are best able to grow. Sufficient heat, cleanliness and refrigeration constitute protective measures which are thoroughly adequate in the prevention of outbreaks of this sort.

At the White House Conference on Child Health and Protection, President Hoover said:

"If we could have but one generation of properly born, trained, educated and healthy children, a thousand other problems of government would vanish. * * * Moreover, one good community nurse will save a dozen future policemen."

RESULTS IN EXAMINATION OF LABORATORY TECHNICIANS

The semiannual examinations for certificates of proficiency for laboratory technicians were held in both Los Angeles and in Berkeley during the month of May. The number of applicants exceeded those registered for any previous similar examination and the work involved in conducting the examinations, grading papers and issuing certificates was considerable. A total of 113 persons took the examinations and there were 189 examination papers to correct, as many applicants took more than one examination. Examinations were given in the four divisions of bacteriology, serology, biochemistry and parasitology. Of the 47 who took examinations in bacteriology, 17 secured senior certificates, 20 junior certificates and 10 failed. Of the 35 individuals taking the examination in serology, 7 secured senior certificates, 12 junior certificates and 16 failed. Of the 70 individuals taking the biochemistry examination, 35 earned senior certificates, 23 junior certificates and 12 failed. Of the 37 who took the parasitology examination, 14 secured senior certificates, 4 junior certificates and 19 failed. In conducting the examination, applicants were required to do practical work in both bacteriology and parasitology. It proved a valuable and effective addition to the written examination.

MORBIDITY*

Diphtheria.

48 cases of diphtheria have been reported. Those communities reporting 10 or more cases are as follows: Los Angeles City 27.

Measles.

424 cases of measles have been reported. Those communities reporting 10 or more cases are as follows: Oakland 16, Los Angeles City 17, San Francisco 90, San Joaquin County 22, Manteca 10, Stockton 84, Redwood City, 19, Stanislaus County 77.

Scarlet Fever.

126 cases of scarlet fever have been reported. Those communities reporting 10 or more cases are as follows: Los Angeles County 16, Los Angeles City 50.

Whooping Cough.

389 cases of whooping cough have been reported. Those communities reporting 10 or more cases are as follows: Oakland 12, Los Angeles County 26, Los Angeles City 87, Long Beach 20, Pasadena 14, Santa Monica 16, La Habra 11, San Diego 43, Santa Barbara 28.

* From reports received on June 20th and 21st for the week ending June 18th.

Smallpox.

5 cases of smallpox have been reported, as follows: Glendale 1, Los Angeles City 3, Hawthorne 1.

Typhoid Fever.

16 cases of typhoid fever have been reported, as follows: Fresno 1, Hanford 2, Long Beach 1, Los Angeles City 2, Madera 1, Monterey County 1, Riverside 2, Sacramento County 1, Sacramento 1, Upland 1, San Francisco 1, Stanislaus County 1, California 1.**

Poliomyelitis.

2 cases of poliomyelitis have been reported, as follows: Los Angeles City 1, Sunnyvale 1.

Undulant Fever.

3 cases of undulant fever have been reported, as follows: Monrovia 1, Orange County 2.

Coccidioidal Granuloma.

One case of coccidioidal granuloma from Berkeley has been reported.

Tetanus.

3 cases of tetanus have been reported, as follows: Los Angeles City 2, San Rafael 1.

Food Poisoning.

20 cases of food poisoning have been reported, as follows: Long Beach 2, San Francisco 4, San Joaquin County 14.

Encephalitis (Epidemic).

One case of epidemic encephalitis from Fresno has been reported.

Leprosy.

One case of leprosy from Los Angeles City has been reported.

Malaria

One case of malaria from Los Angeles County has been reported.

** Cases charged to "California" represent patients ill before entering the State or those who contracted their illness traveling about the State throughout the incubation period of the disease. These cases are not chargeable to any one locality.